A PRND POLYMORPHISM IN CHURRA DO CAMPO PORTUGUESE SHEEP BREED

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Prion-like Doppel gene (PRND) is located downstream from priori protein gene (PRNP). Doppel protein is not related to prion disease but to male fertility. Our previous analysis of PRND coding region in 460 animals from 8 Portuguese sheep breeds, by multiple restriction fragment-single strand conformation polymorphism (MRFSSCP), revealed a synonymous substitution (78G>A). An association was found between identified PRND polymorphism and PRNP genotypes, determined by primer extension and grouped into 5 grades of increasing scrapie susceptibility-R1 to R5: PRND was monomorphic (GG) in animals with most resistant ARR/ARR PRNP genotype-R1; higher frequency of heterozygotes (GA) was significantly associated with ARQ/AHQR4. Therefore, EU selection programme to eradicate scrapie in sheep, based on PRNP genotypes, may reduce genetic diversity, with hypothetical repercussions on reproduction. The aim of current work was to evaluate 78G>A PRND polymorphism in highly endangered Churra do Campo Portuguese sheep breed. From a total of 73 animals analysed (16 R1, 36 R3, 18 R4, 3 R5), 72 were GG and 1 GA, the later being ARQ/ARQ (R4). Low incidence of PRND polymorphic variants in this breed may be explained by mating involving small number of related animals, and particular differences in distribution of PRNP genotypes.